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ABSTRACT

Educational revitalization is crucial for a nation facing a 20 percent functional illiteracy rate, as well as increasing foreign industrial challenges. Like America's auto manufacturers who returned to business basics and thus achieved a $10 billion reversal of fortunes in just 3 years, educators in a technical society must define their own basics--and business and industry must help. Ford Motor Company, for one, is directly involved in the education business. Jointly undertaken with the United Auto Workers, the landmark Employee Development and Training Program is not limited to Ford-related jobs, but, rather, helps persons individually, already enrolling them in over 4,400 education programs across the country. A new learning center in a Michigan plant even teaches literature and English as a second language. America needs re-educating, and, with business, should set its sights at outermost reaches. A school in space should not be inconceivable. Technological resources belong not just in homes as entertainment devices, but also in classrooms as opportunities for learning. Of American Samoa's four television channels, three are used full-time for educational purposes. Eleven hours of daily television instruction are now possible even for India's remotest villages, and France devotes 20 percent of network time to educational enrichment. American classrooms also must merge technology and the three R's, and the nation dedicate itself to lifelong learning. (KS)

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TECHNOLOGY AND THE THREE R's

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Following is the text of remarks by Philip Caldwell, chairman of the board, Ford Motor Company, at the National Association of Elementary School Principals convention at the Rivergate Hotel, New Orleans, Louisiana, on Saturday, April 14, 1984:

TECHNOLOGY AND THE THREE R's

I have grown up believing that the very best passport you can have to take you through life is a set of principles. But I never envisaged coming together with a set as big as this gathering.

I know, of course, that the two words -- principal and principle -- are homonyms, the spellings of which are often confused by those among us whose grammar school teachers were less determined than mine. But it seems to me that in many ways they are also synonymous, and both are important passwords in the current debate about the state of education in America.

Somebody once said that a school is a building that has four walls with tomorrow inside. In truth, you have in your hands a greater responsibility for shaping the future of America than any other group I know.

I'd like to talk to you about our joint stake in tomorrow -- yours and mine -- for I don't think there has ever been a time when business and education have shared as many common concerns as we do today.

In a sense, we have always traveled the same road. It was the automobile that gave individual Americans the physical means to go

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farther and faster than ever before. It was the teachers, in our elementary and high schools, who gave them the knowledge to find the way.

It is, of course, an infinitely more complex path that we both travel today. When the Model T first ventured along the roads of America, they were largely unpaved, and we went diligently to school to master the three R's. Today, all of us are speeding along in aerodynamic coupes on ribbons of concrete, but somehow, somewhere we took a detour in our pursuit of educational excellence.

We are in danger of losing our way. That's the bad news. The good news is a growing appreciation in our country of the need to revitalize our entire educational process -- to get back on the straightaway.

An increasing number of thoughtful and concerned citizens -- individuals from education, business, labor and government -- are ready, anxious and willing to help define the problems and to be part of the solution. I serve as a member of two groups which have examined the education question: The Business-Higher Education Forum and the Task Force on Education for Economic Growth, a continuing project of the Education Commission for the States.

The public policy debate is now being fueled by more than a few published reports on the state of education in America. Dare I say that the conclusions of these reports are summarized by their titles, and that the message is clear? It goes something like this: At "A Place Called School" we are not "Making the Grade;" "The Need for a National Response" is evident, for we are "A Nation at Risk" -- threatened by a rising tide of mediocrity -- which demands "Action for Excellence."

You have read the reports and understand the ramification of the findings. The facts are a sad reflection on this, the greatest nation in the world.

Two months ago, I was in Southern Africa, and I went to Zululand -- to the Valley of a Thousand Hills -- where one of the few outsiders permitted to transact business is the postmaster. He not only delivers the letters, but in a number of cases he also has to open them and read them and write the replies, because many of the recipients can neither read nor write.

Perhaps that is not very surprising in a tribal society, but it has to be surprising -- and a matter of national concern, if not disgrace -- that one in every five adults in the United States is also unable to read and write.

In other words: 20 percent of the potential workforce in our country is functionally illiterate and, therefore, unable to participate in even entry-level training for jobs without remedial instruction in the three R's, and unable to exercise fully the responsibilities of citizenship.

When we look at replacements for the present workforce, we discover that about 13 percent of all 17-year-old students and perhaps 40 percent of minority youth are essentially unprepared to face the realities of the workplace, and ill-equipped to make a productive contribution to the nation's future, or their own.

In the next decade alone, 15 million new workers will enter the workforce. They -- and many of the 100 million currently employed -- will require additional training and retraining to meet changing job requirements. Moreover, training and education are urgently needed for the 3.5- to 4-million Americans now chronically unemployed.

In addition, American industry is facing new competitive challenges from abroad that demand an increasingly more sophisticated pool of talent, particularly in the technical fields. This nation is presently producing 60,000 new engineers a year, but as forecasts predict, that may be as much as 40 percent fewer than we need to meet the demand in the foreseeable future. By comparison, Japan -- with less than half our population -- now graduates each year at least as many engineers as are graduated from American universities and as many as the whole of Western Europe.

As you know very well, more than half of all high school graduates take no mathematics or science beyond the tenth grade, and fully one out of every four college-level mathematics classes offered is remedial math.

To compound the problem, and further threaten the future, there is a shortage of well-trained faculty. In American engineering colleges one teaching chair in 10 is empty, and more than 40 states report a shortage of mathematics and physics teachers at the secondary school level.

Since 1970, the annual number of engineering doctorates awarded in the United States has declined by nearly a third, and some 45 percent of those that are awarded are earned by foreign nationals. The drop-off in the number of doctorates awarded in the physical sciences and mathematics is equally alarming.

I am not unaware of the burdens you carry as elementary and middle school principals. Responsibilities traditionally outside the schoolyard have come knocking at your door. You now perform the role

of parent, disciplinarian, neighbor, big brother, big sister and baby-sitter, in addition to educator. You are expected to live with problems some parents would prefer to deny exist, from alcohol and drug abuse to violence.

Your offices are deluged with paperwork and reports to keep track of federal and state programs, teacher assignments and pupil absences. You are open for breakfast and for lunch and for long hours after the academic session has ended.

Mom isn't home after school for an increasing number of your students. Nearly 20 percent of all families in this country are now headed by a single parent, and 66 percent of the mothers with school-age children in two-parent families have entered the workforce. In many cases, you are expected to provide the latchkey.

PTA membership -- a traditional source of community support -- is steadily declining from about 11 million in the mid-sixties to under 6 million today, and teachers are also departing ranks. Obviously, revitalizing the educational system is much more than an academic question.

The academic findings, alone, are challenging enough. They do not make a pretty picture, but they are an honest appraisal of the report card turned in by the country that spends more on education than any other country in the world -- $200 billion or 6.5 percent of our gross national product in 1982 -- and whose education system was once the model which other countries sought to emulate.

This represents a formidable challenge to America's largest single enterprise, since nearly 64 million Americans are at this moment either students or teachers or principals.

In the face of all this bad news, it would be very convenient to conclude that the issues are too difficult and the resources too inadequate for solution -- and there will almost certainly be some among us who will resign themselves to becoming card-carrying pessimists.

But I, for one, am not discouraged, because I see some very interesting parallels between the challenges to education and those which have faced the U.S. automobile industry in recent years. For example, there were those who told us in 1980 -- the year in which the American automobile manufacturers had combined losses of $4.2 billion dollars -- that Detroit was a dying dinosaur. We didn't believe or accept that. Instead, we went back to the basics of our business -- in a sense to our three R's -- and achieved the most dramatic turnaround in U.S. corporate history. In 1983, the industry's results were $6.2 billion into the black -- a $10 billion reversal in just three short years.

As educators, you are now faced with a similar task -- that of revitalizing America's educational enterprise.

Let us consider, then, what are the basics for education as we approach the twenty-first century -- and the educational requirements in an increasingly technical society that is moving at the speed of light.

It seems inevitable to me that there have to be two or more learning cycles in the life of every individual. There is no point in any life when any one person can say: "My learning days are over." I agree with Will Durant who said, "Education is a progressive discovery of our ignorance."

In what I think of as this double or continuous learning process, you get the first crack, we get the second -- for there is no way that business or industry can opt out of the educational system. We cannot afford to take a disinterested view of how you do your jobs, for the products you produce are the raw materials of our future -- our human capital.

In fact, in my own company, we're now investing more time, energy and effort than ever before in our history, refining and adapting the raw materials you send us -- as our business becomes more complex and the need to adapt to changing technologies more urgent. Mechanical engineers in our workforce now are being retrained as electronic engineers. Our manufacturing people are dealing with processes that were not even invented when they were in high school or college. Product designers and engineers have abandoned their T-squares and drawing boards for light pens and computer graphics terminals.

At Ford Motor Company today, we are directly involved in the education business. And when I say directly involved, I really mean it.

To keep up with the flood of change in which our industry is engulfed, we're projecting, for example, that some 13,000 people in our North American operations alone will take part in management and technical training this year. That is more than six times the number enrolled in corporate training programs of this type in 1981.

But perhaps our most exciting educational pursuit is the one we have undertaken jointly with the United Automobile Workers to provide education, training and retraining opportunities for both active and laid-off hourly employees, helping them to realize their full

individual potential. Our Employee Development and Training Program is the first of its kind ever attempted by the private sector, and, because of its joint administration by labor and management, it has become something of a landmark in the history of American labor relations.

Today, it is a model for the industry, and we have opened our doors to many other companies who want to come and see what we are doing and apply the ideas to their own needs. Over 8,000 men and women nationwide have already participated in this program. Our commitment to the future is demonstrated by the more than $18 million we have already pledged to this joint venture.

Our commitment to the program is, first and foremost, to allow individuals to learn a new skill or earn a new degree. We are concerned with preparing them to face the future.

It is of particular significance that the program is not limited to education or training that relates to jobs within Ford Motor Company, but is designed to help our people individually. In fact, we have already sponsored our first minor-league baseball umpire -- a former Ford employee who decided to pursue his life-long ambition behind the plate -- and another employee who opted to go under water to become a scuba diving instructor!

Our people have enrolled in over 4,400 educational programs at no fewer than 663 universities, community colleges, and vocational and technical schools across the country. They aspire to become MBA's and medical technicians, robotics specialists and electrical engineers. They can become anything they want to be.

The motto for this program is imprinted at the entrance to the national center and on all its literature. It reads: "Jointly dedicated to human growth and understanding." And it is.

But our training commitment does not stop there, for we have also found ourselves in the business of helping our employees develop their basic skills. In our huge engine plant in Dearborn, Michigan, for example, a new learning center was opened last August to allow employees to study English grammar and literature, mathematics, science and social studies -- or whatever courses they may need to earn high school diplomas or a General Education Development certificate. The center also offers courses in English as a second language. It is truly giving some of our employees a new lease on life. About 200 people are currently enrolled at that plant alone, and we have initiated 10 other basic skills programs at other plants and facilities around the country.

Let me call your attention to a footnote on this program: An employee capable of doing only 5th grade work when he entered the basic skills program is now able to help his daughter with her math homework -- which is, in turn, helping her to improve her own grades in school.

Now, you may ask: "What's that got to do with making engines?" Well, maybe nothing, but I'll bet he's got a more meaningful reason now to give his "all" -- day in and day out -- and that just might mean better engines for our customers who demand and are getting high-quality Ford cars and trucks.

To a large extent, of course, these programs are correcting past failures -- teaching basics that should have been acquired years ago. But we recognized the necessity to do that, just as we accept the need to assume responsibility for what I earlier called the second crack -- the second or third round of learning in the lives of our employees.

What I find most rewarding, however, is we are enriching the private and working lives of so many of our people -- stretching their minds and, in turn, enlarging their aspirations -- which brings an unexpected zest to the business of going to work.

We have recognized that training and education must not be regarded as expendable fringe benefits but rather as critical elements in meeting our own challenging quality and productivity goals. You might call it "getting wise." After all, it is of little value to re-equip an industrial facility with high-technology tools and machinery unless the people who work there are re-equipped with skills and know-how to use them.

What I particularly want to emphasize in regard to this exciting and intellectually hungry Ford "campus" is that it has all been done in a comparatively short span of time. The Employee Development and Training Program, for instance, was initiated less than two years ago. None of the major programs I have described to you was there as recently as four years ago.

We often have to remind visitors to our learning centers of this fact, for these new ventures have taken root quickly and already have the look of mature growth.

In other words -- and I think this is the message that we need to spread across the nation -- if the will is there to get it done, it can happen and it will happen.

We haven't had to march anybody into the classroom or keep them there under guard. We haven't had to talk anybody into anything. They have lined up to sign up.

This is what I think will happen to education throughout our country when we see some determined programs put into action, instead of into reports. It will happen when we decide to bring tools of technology -- wholesale -- into the classroom. It will happen when we all agree that the place to start with the re-education of America is at the very beginning -- in the elementary and high schools.

We should not begin with modest proposals, for this is not a modest undertaking. Not even the sky should be the limit. We should set our sights on the outermost reaches of our technological capability.

Who, after all, knows the limits of space or of the human mind?

This country is now committed to putting a manned research laboratory station in space. Why can't we put a school there first?

Here I speak of new tools not now being emphasized. I view the linking of satellites, television, computer and cable as offering extraordinary opportunities for education. This country needs to provide its schools with sophisticated resources -- literally at the push of a button.

We must bring these technologies to your classrooms for learning -- at least as rapidly as we bring them to your homes for entertainment. I ask you: Which, after all, is more important?

It is often said that we live in an "information society," which means that we have access to more information about more things than our forefathers ever dreamed possible. Yet it seems to me that you and our children are the victims of this society rather than its beneficiaries.

There is no more powerful medium for communication than television, and your students know it. The average child between six and 11 years old spends around 29 hours watching television every week. They are being educated by NBC, CBS, ABC and Hollywood, and their values are being established by ratings that have nothing to do with academic excellence.

Why, then, can't we use this powerful communications technology to our advantage? Why can't we apply the most sophisticated tools of the 21st century to the teaching of those present-day students who will be the educators, industrialists and political leaders of this nation in the future?

Others have been quick to see what an important teaching asset television can be. About 15 years ago, while visiting American Samoa, I was standing on the beach observing one of the most beautiful sights I had ever seen -- an outrigger racing competition involving 40-man boats from various Samoan villages. I was approached by a stranger and engaged in a conversation about the race. After several pleasant exchanges, I suddenly realized that I was being interviewed live on camera and that it was being telecast throughout the islands.

My interviewer, as it turned out, was the news director of the one television station on the islands. From him I learned there were actually four operating television channels in American Samoa, all of which were being used for education -- three of them full time.

I visited his station, as well as several classrooms in which television was being used as the primary teaching medium. The teache supplemented the television -- not the other way around.

On those tiny islands in the middle of the Pacific Ocean, modern technology was being broadly applied to meet the most pressing need of the people. By contrast, at home -- in the richest country in the world -- the same technology was being squandered on largely frivolous pursuits like Saturday morning cartoons and video games. Ironically, the Samoan program was being administered by the U.S. Department of Interior.

The Samoan program is not an isolated example.

You may not know it, but our wholly owned subsidiary, the Ford Aerospace and Communications Corporation, is one of the largest manufacturers of communications satellites in the world. Last year, we put one into orbit over India -- and overnight the Indian government transformed the educational possibilities for its vast population of 700 million people.

In the smallest villages in India, television sets are beginning to sprout in communal use, teaching everything from crop management to spelling. For up to 11 hours a day, seven days a week, instructional TV broadcasting is now possible in the remotest of India's villages. One satellite is just the beginning, but the potential for education is enormous.

Japan has perhaps the most ambitious educational broadcasting program in the world. One of its two television networks is devoted wholly to education -- transmitting programs for primary, secondary, and higher education, vocational and technical instruction, and special offerings for the mentally and physically handicapped.

The British government -- which pioneered in educational television -- has an open university on the air which awards degrees.

France, Italy and Germany all have broadcast programming aimed at their schools. In France, for example, nearly 20 percent of network time focuses on educational enrichment.

This is not to say that the initiative is lacking in America. PBS, cable companies and university consortiums have some successful projects under way. Individual states have also launched their own efforts -- with varied results. Most notable among them, perhaps, is South Carolina which already has an instructional television system capable of bringing six simultaneous broadcasts to 80 percent of the state's public school children, and which has begun installing a sophisticated new microwave network to bring programming to all of its schools by 1986. Believers in educational television such as Mr. Walter Annenberg -- who has given a 15-year, $150 million grant for educational programming -- have provided the important impetus. But, on the whole, our efforts to date have been too few and far between.

I am not suggesting that the television set should replace the teacher in American classrooms. I am suggesting that the size of our educational deficit requires that we apply our most modern technology to bring additional resources into the classroom. It is time that we merged technology and the three R's.

There have been other times in our history when we have decided to "get educated." When the tides of immigration brought vast numbers of newcomers to our shores, we turned to the schools for the "Americanization" of adults as well as children. When the problem of economic readjustment hit home following World War II, we initiated the GI Bill. When the alarm over Sputnik was sounded, the National Defense Education Act was inspired.

Once again, we must mobilize our national will to "get educated." Significantly, this time, we must dedicate ourselves to a lifetime of learning -- to the realization that new frontiers lie ahead and that making the grade means never taking our eyes off the mark.

We, as a nation, must make education a priority deserving of the honor roll. When -- and only when -- we are secure in knowing that our academic performance holds a summa cum laude distinction will our goals be met.

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